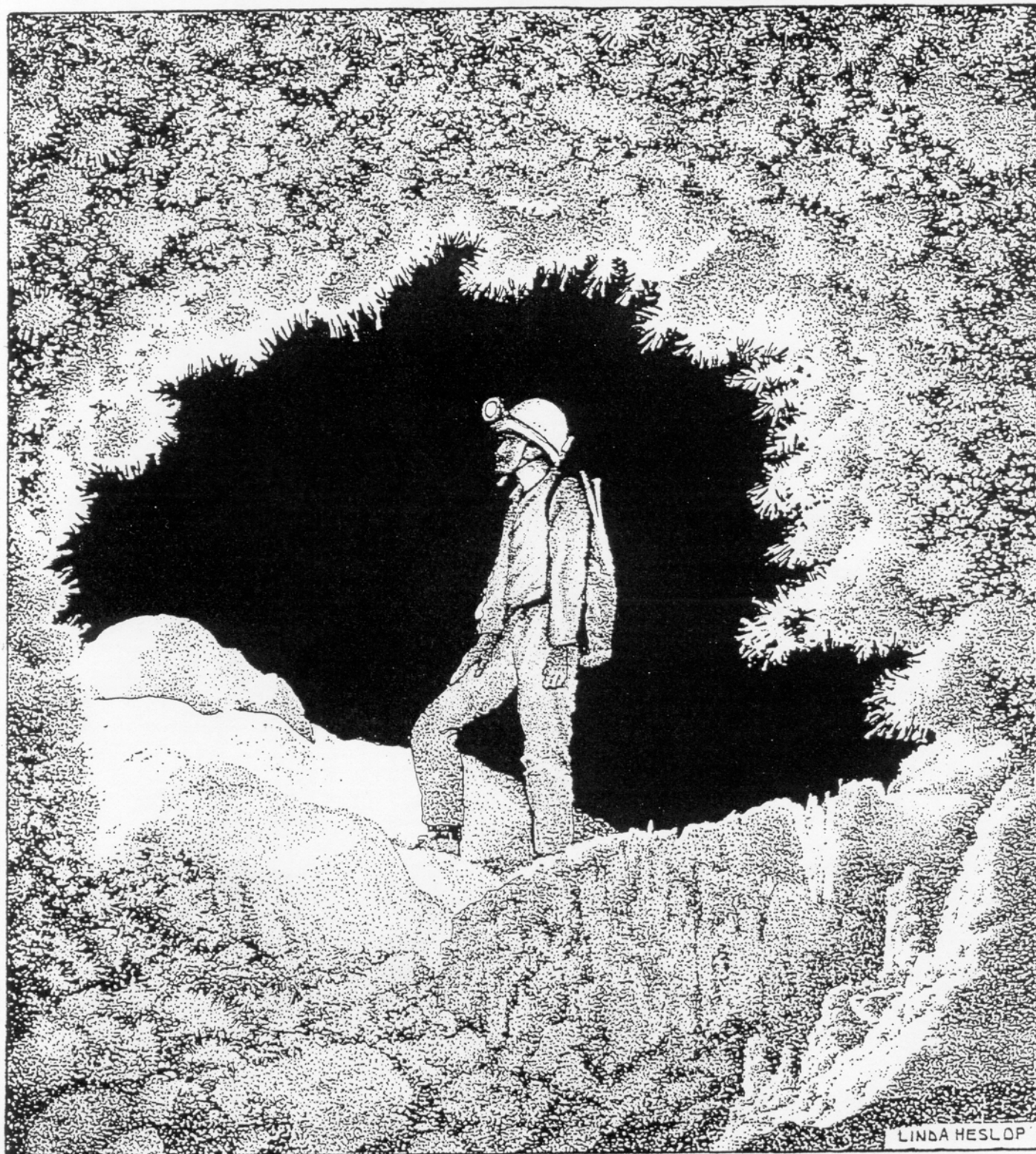


IKC Update

NUMBER 29

JUNE 1993



INDIANA KARST CONSERVANCY

INDIANA KARST CONSERVANCY, INC.**PO Box 2401, Indianapolis, IN 46206-2401***Affiliated with the National Speleological Society.*

The Indiana Karst Conservancy, Inc. is a non-profit organization dedicated to the conservation and preservation of caves and karst features in Indiana and other areas of the world. The Conservancy encourages research and promotes education related to karst and its proper, environmentally compatible use.

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Cover - Chandelier Graveyard in Lechuguilla.

Pen and ink by Linda Heslop from a photo by Urs Widmer.

Publishing courtesy of **Myotis Press**, Editor and Publisher Keith Dunlap.



QUARTERLY MEETING REMINDER

SATURDAY, JUNE 26th, 7:00 PM

BLOOMINGTON, INDIANA

IU GEOLOGY BUILDING, ROOM 143

(SAME ROOM AS BIG MEETING)

The quarterly meetings are for members and other interested persons to have an open forum for talking about cave and karst conservation and related topics. Past, present, and future IKC projects are discussed to solicit comments and input from our members and the caving community as a whole. The meetings are informal, and everyone is encouraged to attend and participate.

Preliminary Agenda Items: brief recaps of last quarter's activities; SR 37 4-laning project status; mud sprayer; Ray's Cave update; Shiloh Cave gate status and project approval; hibernacula temperature monitoring, **POTENTIAL LAND ACQUISITION!**, and more...

Meeting directions: The Geology Building is located at 10th and Walnut Grove. Tenth Street runs east / west and is one of the major streets that cut across the IU Campus. Park behind the building, parking permits are not enforced at night. Enter the building from the rear at the west end. The room is halfway down the hall on the right.

EVENTS CALENDAR

- 26 JUN = HANCOCK PROPERTY WORKDAY, Bloomington, 1 PM (see page 4)
- 26 JUN = IKC QUARTERLY BUSINESS MEETING, Bloomington (see above)
- 3, 10 JUL = SHILOH GATE INSTALLATION, Bedford (tentative - see page 5)
- 10 JUL = GRAND OPENING - AMERICAN CAVE MUSEUM, Horse Cave, KY (see page 6)
- 16-18 JUL = FIBORN KARST PRESERVE WORK WEEKEND, Michigan (contact Tom Rea)
- 15-21 AUG = MAMMOTH CAVE RESTORATION WEEK, Kentucky (see *Update* #28, p 6)
- 29 AUG = COON CAVE CLEANUP, Bloomington (see page 4)
- 17-19 SEP = KARST ENCOUNTERS, North Vernon (see page 11)
- 23-30 OCT = NATIONAL CAVE MANAGEMENT SYMPOSIUM, Carlsbad, NM

Membership to the IKC is open to anyone interested in cave and karst conservation. Annual dues are \$15. Please see inside back cover for the membership application form or to make a donation.

The *IKC Update*, distributed for free, is published quarterly for members and other interested parties. The purpose of this newsletter is to keep the membership and caving community informed of IKC activities and other news related to cave/karst conservation. Submission of original or reprinted articles for publication is encouraged. Materials should be forwarded to the *IKC Update*, PO Box 2401, Indianapolis, IN 46206.

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RAMBLINGS FROM THE PRESIDENT...

In the last *Update*, my "ramblings" column touched upon the long term goal of the Conservancy becoming a land owning organization. In this issue I wanted to expand that thought a little to discuss some of considerations associated with that vision.

Foremost, the motivation for purchasing property with cave and karst features is to provide perpetual protection of the resources. Our ability to manage and protect properties via leases from other landowners has been successful, but it lacks permanency. Many other conservation organizations have come to the same conclusion: owning the resource is only way to assure long term protection. Within Indiana, there are many private organizations that are buying to protect. The Nature Conservancy is probably the best known, organized, and funded, but there are many other smaller ones (ACRES, Indiana Audubon, Sycamore Land Trust, etc). Cave and karst specific organizations that own land include the NSS, the Texas Cave Management Association, the Butler Cave Conservancy, and the Michigan Karst Conservancy (MKC).

Few would probably dispute the desire for the IKC to own property, but of course the most obvious question is where do you get the money. There is no simple answer, but in some instances, you may not even need money. It may just be a matter of being at the right place at the right time, and having

the ground work laid to accept a property. Realistically though, most land will have to be purchased.

The MKC is only a couple of years older than the IKC and is a smaller organization, yet they own several properties. Their first purchase was a gutsy decision, buying a property with IOU's from several of their members. Remarkably though, they were able to pay off the loans in a very short time. This gave them confidence and experience for the next deal which I'm sure was much easier.

Because of the speed at which most land become available and subsequently sold, the IKC needs to be prepared and know what financial resources we have at our disposal. We also need to formulate criteria to objectively judge the desirability of the property (endangered species, formations, geologic significance, recreational appeal, need of protection, etc) so that the emotions of the moment do not lead to a poor and costly decision.

There are dozens of other considerations that need to be debated and I would like to spend time at the June meeting to explore these items in more detail. If you have a strong option pro or con on the subject, please try to attend. If you can't make the meeting, please communicate your thoughts to the Executive Board.

- Keith Dunlap

COON CAVE CLEANUP - SUNDAY, AUGUST 29th

The IKC will be sponsoring its 8th annual cleanup into Coon Cave on Sunday, August 29th. As in past years, our main activity will be graffiti removal and/or mud-washing, and of course, having fun. We will also continue experimenting with the mud sprayer.

Coon Cave is approximately 1200 feet long, but has multiple levels which make the cave seem much bigger. There are numerous climbable pits and breakdown crawls, possibly even virgin passage for the more determined. The entrance is a 22 foot pit which will have a cable-ladder rigged for belayed entry (no experience is required). Some may wish to do the entrance "on rope" with their own vertical gear.

Plans are to meet at the west side McDonald's by 9:30, or at the cave parking lot (at the end of Spicer Lane) by 10 AM. The cave is easy and appropriate for novice and experienced cavers alike. **Everyone must wear a hardhat** and sign a waiver before entering. This will be the last opportunity to visit Coon until May 1st, 1994 because of the bat hibernacula closure.

Anyone needing more information or directions, please contact Keith Dunlap.

NEWS BRIEFS...

- ❑ With the increased membership, the IKC Executive Board, per our bylaws, was increased to its maximum of 15 members. Elected/re-elected at the March meeting were Keith Dunlap (President), James Adams (Secretary), Scott Fee (Treasurer) and Board members Bruce Bowman, Bruce Devore, Dave Haun, Hank Huffman, Scott Johnson, Larry Mullins, Eric Schmidt, and Tom Sollman. Continuing on the second year of their two year term are Directors Jeff Cody, Ernie Payne, Tom Rea, and Bill Tozer. The IKC would like to also thank Glenn Lemasters, Jane Miller, and Lynn Miller who are retiring Board members who chose not to seek re-election. All three served for a number of years and their contributions have been greatly appreciated.
- ❑ The US Army Corps of Engineers has been commissioned by a congressional appropriation to spend \$400,000 in re-studying the flood control problems in the Lost River area (something that has been studied numerous times since 1946 with always the same conclusion: there are no feasible solutions). As part of this pork barrel project, the Corps was instructed to spend approximately 25% of the money on "environmental" concerns dealing with the Lost River. Since the concept of evaluating environmental issues is foreign to the Corps, they are contracting this part of the project out to other federal agencies who are better qualified to determine how best the money can be spent. Involved in this determination is Larry Mullins of the Hoosier National Forest (and IKC Board member). Potential projects include the development of a written overview of karst features in the Lost River, exploration and mapping of the True Rise, further delineation of the Lost River drainage basin via dye tracing, biological inventorying of subterranean species, botanical inventorying of special species around cave and karst feature micro-climates, and subterranean flow channel mapping via remote-sensing geotechnics. The work is to start July 1st and be completed by January 31st, 1994.
- ❑ The Indiana Department of Natural Resources, Non-game Section is initiating work to have the Northern Cavefish (*Amblyopsis spelaea*) listed as a federally endangered species. The first step of this process is to determine the status of the species by documenting current and historic locations. A researcher is being hired to undertake this project which will be completed by the end of 1994. Cavers can support this effort by reporting cavefish sightings to Keith Dunlap or Dave Black.
- ❑ Scott Johnson (IDNR non-game biologist and IKC Board Member) and Bob Madej (IDNR intern) presented results on their recent Eastern Woodrat (*Neotoma floridana*) studies at the Allegheny Woodrat Conference and Workshop (Dickinson College, Carlisle, PA). Scott and Bob spent over a year of field work determining the status of the Woodrat, a state listed endangered species that is primarily found on the cliffs overlooking the Ohio River in Harrison and Crawford counties. Similar work was completed ten years ago, and in that short time, populations at several sites have completely disappeared while others have decreased. The only non-cliff sites found were at several caves, including Potato Run Cave, PP Pot, Little Mouth Cave, and Limekiln Hollow Cave. Anyone interested in a copy of the report summarizing the project may contact Scott or Keith Dunlap.

HANCOCK PROPERTY WORKDAY - SATURDAY, JUNE 26th

Prior to the IKC Quarterly Meeting in Bloomington on Saturday, June 26th, the IKC will be working on the Hancock property (off of Spicer Lane), starting at 1:00 PM (we will finish up around 5:00). This year there are no specific major projects needing our attention, but we plan to walk all the trails to collect trash, post new NO TRESPASSING signs, and perform whatever other maintenance needs to be done. Grotto Cave will be open and available for those wishing to make a quick trip into this cave. We also need to switch out the register in the cave.

Anyone needing more information or directions, please contact Keith Dunlap.

- ❑ The plan to replace the gate at the Quarry Entrance to Shiloh Cave is proceeding, but slightly behind schedule. Our hope is to have final details and a management plan ready for the Board's approval by the June meeting, and to start construction soon after. Tentative on-site work dates are July 3rd and July 10th (subject to change, and dependent on the weather and water level). Our biggest problem has been coordinating with the quarry owner who is out of town and/or out of his office a lot. Contact Keith Dunlap or Jim Adams if you would like to volunteer for this project.
- ❑ The other planned gating project for this summer at Jim Ray's Cave has been postponed indefinitely. While the owner originally agreed to the installation, she is now having second thoughts. She understands the importance of protecting this Indiana bat (*Myotis sodalis*) colony during hibernation periods, but is having a "moral" dilemma about altering the cave and impacting its entrance aesthetics. She is also apparently uncomfortable with some of the legal agreements required by the State of Indiana to install a "publicly" funded project on private land. Hopefully things can be worked out by next summer to reduce the vulnerability at this cave, which is the largest unprotected Indiana bat hibernacula known to exist.
- ❑ A large group of 65 cavers participated in Indiana's Under-Earth Day IV at Sullivan Cave on April 25th. Despite lousy weather, everyone seemed to have a good time collecting trash, wire brushing graffiti, and mud painting wall. Participants included Bruce Bowman, Cissy Bowman, Mick Bradford, ??? Brooks, Mark Borgending, David Buchner, Chris Cahill, Steve Cahill, Marty Church, Amanda Clark, Jerry Clark, Matt Clark, Michelle DeWitt, Mike DeWitt, Bruce Devore, Toby Dogwiler, Mike Dowden, Ron Dowell, Steve Duell, Keith Dunlap, Pam Evans, Scott Farley, Robin Fitch, Shelly Forbis, Sam Frushour, Frank Garrison, Katie Garrison, Rose Greenwood, Steven Greenwood, Matt Hayden, Mike Hayden, Eric Higbie, Willie Hunt, Steven Johnston, Erik Liebhaber, Kriste Liebhaber, Roy Logan, Jeff McCammon, Kelly McCammon, ??? McCammon, Anmar Mirza, Claire Parks, Joe Parks, Megan Porter, Tony Rainbolt, K. Redeker, Jay Savage, Eric Schmidt, Bob Sergesketter, Barry Smith, Maranda Springer, Robert Sollman, Tom Sollman, Donna Stemore, Annette Summers, Edie Tendich, Ray Tichenor, Brad Uets, Grant Van Hemert, Floyd Waldrop, Chris Warren, Michelle Warren, Wendy Wentte, Dean ???, and Jeraime ??? [Editor's note: due to all the rain, the roster was completely soaked, so reproducing the names was a guessing game in some instances.]
- ❑ During the Sullivan's restoration workday, a new "mud sprayer" was used as an alternative to brushing. The sprayer is a hand-pumped ceiling paint texturizer, but it seems to work equally well with a mud slurry. The key to its success seems to be in getting the proper slurry ingredients, with clay-like mud working better than sand-based slurries. While the mud sprayer is not much faster, its end results are more natural looking, void of any brush marks. Additional experimenting is planned in the future at Coon Cave.
- ❑ The IKC participated in Earth Day Indiana by setting up our display once again at that event on April 24th at the Art League in Indianapolis. Questions always range from "What's karst?" to "How do you get rid of bats in an attic?", but the main purpose is to disseminate information on the threats that face karst areas and the biota that inhabit them. A special thanks to Bruce Bowman for volunteering to setup and man the display this year.
- ❑ The IKC Hoosier National Forest ridgewalk on March 21st had a disappointing turn out of only two cavers. However, all was not lost as Keith Dunlap and Robert Decker mapped two caves (Q1b3 and David's Spring cave) in Orange County. This effort is all part of the on going HNF cave and karst inventorying project to better protect and manage this public land.
- ❑ The Ohio Valley Region recently appointed Susan Weeks (Cincinnati, Ohio) as the Conservation Chairperson of the OVR. With this appointment, the OVR is emphasizing the conservation aspects of caving in the Indiana, Ohio, and Kentucky areas. Susan

wishes to organize/sponsor/co-sponsor at least one project a year, rotating between the three states. This year's project will be to assist the Boone Karst Conservation Task Force in gating Stillhouse and Cave Hollow caves. Stillhouse Cave is the hibernaculum for two-thirds of the Virginia Big Eared bats in Kentucky and Cave Hollow Cave is a hibernaculum for Indiana bats. Funding for the gates will be provided by the US Forest Service. For more information, contact Susan at (513) 474-0503.

- ☐ The American Cave Conservation Association (ACCA) and the City of Horse Cave, Kentucky has announced the official Grand Opening of the American Cave Museum and Hidden River Cave on Saturday, July 10. A special dedication ceremony will be held in the sinkhole from 5:30 to 6:30 PM (central time). The Museum's Open House will be from 5:00 to 9:00 PM. For more information, contact the Museum at (502) 786-1466.
- ☐ The 1993 legislative session can be considered an environmental disaster, with all of the pro-environmental initiatives being shot down, while several current environmental protection regulations were weakened. It appears our legislators are much more concerned with playing partisan games than doing what is right for the citizens of Indiana.
- ☐ The Indiana environmental license plates have been very popular with over 7000 plates being issued. This makes it the second most popular specialty plate behind the IU plate. Each plate represents a \$25 donation to the Heritage Trust Fund, dedicated to purchasing and protecting more public land. Unfortunately, the money derived from these plates is just a drop in the bucket compared to the real amount needed.

- ☐ Over the past several winters, the IDNR has been monitoring Coon, Grotto, and Ray's caves for unauthorized winter visitations. This monitoring is done electronically with "speloggers," which can record the date and time of day of each occurrence.

Winter	Grotto	Coon	Jim Ray
92-93	8	3	7
91-92	6	1	6
90-91	n/a	8	4

The information collected will provide a means of determining the effectiveness (or ineffectiveness) of the closure methods at these three caves. Due to the 200 day memory limitation of these devices, the typical periods of monitoring were from September 15th to April 1st (approx 45 days short of the full 8 month hibernation closure). Above are the tabulated number of disturbances detected. It is obvious that the number of violations is higher than it should be, but it is unclear what level is harmful to the bats.

- ☐ Members received with their *Update* mailing a cumulative index of the first 27 issues. Our thanks to member Larry Reese for compiling the information and member Tom Rea for formatting the text. A limited number of some back-issues are available if you happen to see an article of interest. Contact Keith Dunlap with requests.
- ☐ The Spring issue of *BATS* (newsletter of Bat Conservation International) is completely devoted to bat houses. The primary article summarizes results from an extensive nation wide survey of 420 bat house owners, with 276 houses monitored sufficiently to be included in the survey. The most interesting result was that the occupancy rate is much higher than anyone originally suspected. New house designs as well as suggestions to improve occupancy rates were also included. *[Editor's note: A full length article had been planned for this issue including several sketches of bat house designs. Copyright permission was obtained from BCI to reprint several of the sketches, but unfortunately too late to meet our deadline. Look for the article in a future IKC Update.]*
- ☐ The President wishes to apologize to any members who may have received a *blank* meeting notice postcard last month (at least five members have commented on these mystery cards). After the printer (*not* Myotis Press) messed up the first batch, they reprinted a second set free of charge, but apparently there were some blank cards mixed in with the good ones that went undetected.

continued on next page . . .

- Response from our February membership solicitation letter continues to trickle in with a total of over seventy new members now directly attributed to that project. Our membership currently stands at 174, almost doubling the organization's pre-February rolls. New members joining since the last *Update* include: Peter Blankenhorn, Paul & Cheryl Bramer, Dan Burden, George Casey, John Danovich, Ralph Doerzbacher, Michael Hayden, Katherine Johnson, John Koch, Greg Kusiak, David Landess, Steve Lanning, Jill McMahon, Jon Miller, Mark Pansing, Ray Rough, Randy Snyder, Pat Soja, Phillip Springer, Larry Staats, Grant Van Hemert, John Walthen, Floyd & Angie Waldrop, Susan Weeks, Norbert Welsh, Dean Wiseman, and Robert Zimmerman.
- Due to the overwhelming number of new members, we ran out of copies of *Bats of the Eastern United States*. While all members who joined by our March 1st "deadline" received the book, we had planned to honor those that joined later. Unfortunately, the book has been very popular and is now out of print. The USFWS had planned to have a second printing, but there is apparently a funding problem. Assuming the book is reprinted, we will distribute copies as soon as they are received to those who joined between March 5th and May 31st.
- In addition to their regular \$15 dues, many of our new and renewing members have made donations to further support the IKC in its conservation missions. Donations since January have been received from: Tom Ahlers, Dan Burden, Martin Church, John Danovich, Robert Decker, Jeff Farr, Scott Fee, Allen Goodcase, Dave Haun, Steven Johnson, Dale Lofland, Robert Masta, Danny Melton, Pat Phillips, Victor Porter, Randy Roundy, Shane Slay, Pat Soja, Bob Vandeventer, Douglas Wolfe, and Robert Wright. Boy Scout Troop 244 also made a donation to the IKC after visiting one of the caves that has seen our restoration efforts.

IDEM wanted county to close landfill quickly

by Mary G. Johnson

Lawrence County didn't try to expand landfill operations into others areas of the 200-acre landfill site last year because the Indiana Department of Environmental Management (IDEM) wanted the commissioners to get out of the 200-acre site as quickly as possible.

Both Commissioner Kenneth Scherschel, the lone hold-over commissioner on the board, and Diane Shea, the attorney who represented the Lawrence County Solid Waste Management Board, said IDEM wanted the county to finish operations at the site because of the karst topography there.

"Both Glen (Sims) and Everett (Hunter, the former commissioners) were at the meeting we had with Tim Method (IDEM commissioner for solid hazardous waste) in Indianapolis where we brought the site map and looked at possible areas that could take more

trash," said Shea.

Shea said as a result of the meeting they identified areas within the 18-acre approved tract that could accept more waste while IDEM processed the county's application for a transfer station.

"We did not try to get a permit for the non-permitted areas because IDEM told us the existing site is in a karst area and there wouldn't be any point in trying to do that. They wouldn't consider it. If they would have let us go on to non-permitted areas, that would have solved our problem. But the whole site was considered to be in a karst areas and was not suitable for a landfill which is why they wanted to close it as quickly as possible," said Shea.

Scherschel said, "We were under the impression at the time there wasn't going to be any more landfill allowed in that area because of karst topography."

IDEM allowed Lawrence County to go ahead filling the

permitted area of the landfill until the transfer station was approved last year. But the area got full and IDEM has not yet approved the transfer station.

Scherschel and the former commissioners worried about over-filling the permitted area and, in fact, did get too much in the southwest corner of the site, but the majority of that waste is construction debris from houses demolished by the Indiana Department of Transportation on Ind. 37 south of Bedford to four-lane Ind. 37.

There are some areas at the site the commissioners believe were never filled and could be used if IDEM requires the county to dig out the over-filled area and remove that solid waste, he said. That way the county would not have to haul that waste to the Rumpke landfill, he said.

Reprinted from the Times-Mail (Bedford) April, 1993.

WYANDOTTE CAVE RESTORATION WEEKEND

by Bruce Devore

The Wyandotte Cave clean up was held on Easter Weekend, and the weather cooperated to make for a great time. We had a little rain on Friday that made things a little juicy in the campground, but Saturday dawned clear and bright.

Deb and Mike DeVore, Steve and Jim Vaughn, Steve McKenzie, Curt, Joshua, and Norm Howell, Karen and Dave Schang, and Doug Horner represented the Northern Indiana Grotto. There was a fair sized showing of Central Indiana Grotto cavers also.

We were scheduled to meet at the Cave office at 8:00 AM. We read the release forms, reacquainted ourselves with old friends in the parking lot, and generally milled around for about half an hour.

Roger Gleitz, Wyandotte Cave Manager, introduced his staff and explained the tasks of the day. There were rocks to be moved, flash powder and trash to be cleaned up, dust to be picked up or wetted down, a base for a restroom facility needed to be dug, an area prepared for seismograph equipment to be placed. Quite a day of work was presented to us.

As a group, we took a quick tour of the cave to see each of the work areas and the type of work involved. Each group then picked a work assignment, drew the necessary tools, and went on their way.

Deb, Steve Vaughn and myself went to an area of the cave that is directly underneath the visitor's center. There is a wall of breakdown 75 feet high by at least 150 feet wide. There were places on this breakdown where people would pose for pictures. Because of the size of the area that needed to be illuminated, flash powder was used. One famous formation named "Throne and Canopy" was a favorite spot, and as a result the pile of flash powder left there was pretty good sized. Digging with spoons, nails and trowels we were able to fill two pillowcases with the moist clay-like powder. There was plenty of other types of garbage, not necessarily historic, but neat to find all the same. Whiskey bottles, beer cans that looked like brake fluid cans, tobacco tins, *LOTS* of flash bulbs. It was evident that a different style of cave management had taken place at some point, as it seemed that the garbage stopped just about the same time the walkways and guard rails were installed.

We carted off all the trash we could find from that area, and took it out of the cave. We noticed that there were many bats in the main tourist areas of the cave. They never seem to be bothered by all the traffic and the lights.

One big project of note was moving of some huge breakdown blocks which were partially obscuring a scenic formation that people had a hard time viewing.

As many cavers know John Vargo loves to move rock. He was well suited for the task, along with a good sized contingent of CIG cavers. Fortunately, gravity was working for the group. A half day of hard work moved several tons of rock, including one about the size of a Volkswagen Beetle. Big rocks sure make a lot of noise!

Our afternoon project consisted of cleaning some long forgotten formations in a dry section of the cave. They were on the side of a pathway that had been dug about three to four-foot deep to allow tourists to walk up-right. Covered with dirt and dust, they looked dry and old. Out came the nails, trowels, and spoons and a bucket of water and a brush. Soon the stalagmites were fresh looking, and stood out against the tossed up dirt.

Crawling behind the dirt piles that were tossed up when digging the pathway yielded plenty of bottles, tin cans, and the usual flashbulbs, enough to fill another trash bag.

Those two projects filled up our day, and it was back to the campground for *HOT* showers and dinner.

There were after hours tours that were made available on Saturday night and again on Sunday. My family had been camping since Friday morning, and it was time to go home.

It was great to see such a turnout at this clean up. About forty people were there, anxious and willing to pitch in for a hard day of work. Because of the lack of manpower in the past, long needed projects in the cave have piled up. It was hard to put a priority on the projects.

In the future, I would like to see some coordination to break down the projects in a little more detail, and have a little better feel for the project and the objectives. I think that the cleanup project is worthwhile and should be a success for years to come.

SR 37 HIGHWAY UPDATE

by Keith Dunlap

It has now been over a year since the Indiana Karst Conservancy became involved in the problems associated with the four-laning of SR 37 between Bedford and Mitchell. I wish I could announce that everything in our administrative appeal has been settled, but it seems that anything dealing with state agencies takes an inordinate amount of time. Progress has been made in the last several months, but there still seems to be major problems in at least one area of contention.

The positive advances have included the drafting and pending approval of a Memorandum of Understanding (MOU) between the Indiana Department of Transportation (INDOT) and the Indiana Department of Natural Resources (IDNR), Indiana Department of Environmental Management (IDEM), and the US Fish & Wildlife Service (USFWS). The MOU outlines future procedures and coordination efforts to be carried out by the four parties to protect the environment when highway construction is planned in karst areas. The MOU focuses on up-front studies and karst feature avoidance in the pre-design phase to minimize impact during the construction phase. It also covers precautions to be taken during and after construction, including erosion control issues.

Also progressing are the strategies to complete the current highway project. While the IDNR and USFWS were not as aggressive as we would have liked for them to have been, INDOT will be modifying their design on their uncompleted drainage structures (primarily on the east side of the road) to include "mini-basins" and "peat" filters. The mini-basins are essentially small catch areas integral to the drainage ditches just above the sinkhole structures that can trap a fluid spill should there be a highway accident (leaky tanker or ruptured vehicle gas tank). The basins are designated "mini" because they are sized to retain only 500-1000 gallons, compared to the one basin/petroleum trap that INDOT has already installed downstream from the gas station at SR 50 which is sized to retain an entire tanker (10,000 gallons). The mini-basins are a compromise, but should provide protection in most spill situations and give HAZMAT

teams a chance to react before the fluid gets sub-surface. The mini-basins will also act as passive silt and road-contaminants traps during smaller rains.

INDOT has also agreed to install four peat-filter systems to control the water quality entering their sinkhole structures. One filter is down-drainage from an orchard and another is adjacent to a soybean field, both sources for pesticide/herbicide runoff. The other two filters will be located to remove road surface contaminants. All four filters are experimental and each will have a slightly different design. The filters will be monitored and evaluated for their effectiveness with the best design potentially used on future projects. To our knowledge, these filters have never been used to protect sinkholes directly, but they have had limited use in the east and in Texas to control stormwater/highway runoff water quality.

The significance of peat rather than sand or other media is its ability to attract and absorb organic (pesticides) and metal (lead, cadmium, arsenic) particles. The goal is to have the capacities of the filters large enough to handle the first half-inch of rain which is theorized to contain the greatest concentration of pollutants. The remaining water will be by-passed and enter a more direct route to the sinkholes.

In general we (the IKC, the Hoosier Environmental Council, and Protect Our Woods) support the strategies proposed, but we were disappointed that the IDNR and USFWS did not push to have the mini-basins and peat filters retrofitted to the completed west side sinkholes too. While we understand their concern (retrofitting would cause additional construction and prolong the exposure to erosion problems), not requiring INDOT to retrofit is essentially condoning INDOT for continuing construction last year with their inadequate designs.

The one area where INDOT has not made progress, and in fact seems to be moving backwards, is in erosion control. This concern was the primary reason the IKC, HEC, and POW filed our "Notice of Intent" in the first place. INDOT has admitted numerous times that their erosion control plans were lacking, poorly implemented, and ineffective, and yet con-

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Roads and the environment

State developing guidelines for construction in cave country

by Steven Higgs

State highway officials now realize that if they are going to pursue ambitious highway-building plans through southern Indiana cave country, they must accommodate the region's sensitive environment.

After being chastised by state and federal wildlife agencies and threatened with lawsuits from environmentalists over construction practices on Ind. 37 south of Bedford, Indiana Department of Transportation officials are developing cave-country guidelines that they hope will be a model for the rest of the country.

"We think we're going to be state-of-the-art in what we're doing here," says deputy state highway commissioner Kathy Davis. "I think we're doing everything we can."

Their efforts are even drawing preliminary praise from former adversaries.

"I would say this is a step forward for them," says [Keith] Dunlap from the Indiana Karst Conservancy, one of four groups that has threatened legal action over the department's highway design and construction practices.

Before construction began on four-laning Ind. 37 between Bedford and Mitchell, U.S. Fish and Wildlife director Dave Hudak had warned INDOT officials in writing about the region's ecological sensitivity, as had environmentalists.

The highway runs through a region of karst topography, which is underlain with porous limestone deposits and laced with sinkholes, underground streams and caves. The streams are home to the blind cavefish, a state endangered species.

During construction last May, highway workers cracked through the bottom of a sinkhole and then, as it filled with water, watched three blind cavefish swim into it. The fish were rescued by state wildlife officials and returned to the underground cave system.

Following that ecological disaster, environmentalists threatened suit, and the Indiana Natural Resources Commission issued an order ruling INDOT in viola-

tion of the state's endangered species act.

In its order, the commission required that an agreement be reached among the various agencies on highway planning in karst areas before any further projects could begin.

Davis says an agreement has been developed that calls for input from state natural resources and environmental management officials, and federal fish and wildlife officials on future highway plans in the area. A copy of the agreement will be distributed to each agency for review next week.

INDOT has several highway projects in the works that pass through cave country, including the 37 expansion between Bedford and Mitchell, upgrading 37 from Mitchell to Paoli and portions of the proposed Indianapolis-to-Evansville highway, which would pass through karst areas in Monroe County.

In addition to that agreement, Davis says the department has hired a nationally known expert on karst topography to help prepare the guidelines and make recommendations on the current and future Ind. 37 projects.

And that has brought praise from environmentalists, who continue to say that they will sue unless adequate measures are taken to protect the karst environment on Ind. 37 and the other projects.

Dunlap says new INDOT advisor Tom Aley, from Ozark Underground Laboratory in Protom, Mo., is one of the two or three most knowledgeable people in the country on karst topography.

"He'll be pretty neutral in representing everyone's concerns," Dunlap says.

Aley, who was in Indiana a couple of weeks ago to meet with those involved and visit the region, says that's exactly how he approaches his work.

"It's hard to make good decisions without good information," he says. "Our job is to make sure INDOT has good information on caves, karst and groundwater resources and how highway construction would impact them."

With that information, the

agency will be able to build environmentally sensitive highways for the least cost, he says.

Proceeding without that information already has been costly for INDOT.

INDOT officials have had to back-track somewhat on the first phase of the Bedford-Mitchell widening project. They hired an engineer to study the drainage patterns and water quality at each of the 16 sinkholes where construction is already under way.

To prevent environmental damage, they may have to buy more adjacent land in some places and redesign drainage in others, Davis says. Based on advice from Aley, they will experiment with using peat to filter and detoxify highway runoff.

Aley says concerns raised by environmentalists about runoff from road salts, oil and gasoline, and possible spills from accidents were valid.

An important aspect of karst ecology is the existence of a limited amount of oxygen needed by cave creatures, he says. Even a spill of a seemingly benign substance like milk would be devastating as its decomposition would rob the environment of precious oxygen.

Another costly aspect of failing to consider environmental factors early on has been delays in the second phase of the Ind. 37 expansion, Davis says. Letting bids on the second half of the project are months behind schedule because of the cavefish controversy.

"We lost a construction season," she says.

Bob Klawitter from Protect Our Woods says he too is encouraged by INDOT's hiring Aley as an advisor on the Ind. 37 projects and hopes that talk about the new guidelines being a model for highway construction in karst regions is more than talk.

"These guidelines are going to have to be state-of-the-art," he says. "We aren't eager to go to court. We would like to work these things out. Right now our lawsuit is on hold."

Reprinted from The Herald-Times (Bloomington) March 28, 1993.

THE FIRST INDIANA CAVE SYMPOSIUM

by Jim Adams

The first Indiana Cave Symposium was held on Saturday evening, April 24th at the Hoosier National Forest's Hardin Ridge Campground near Bloomington. The event was intended to be the kickoff for an annual seminar about cave exploration, surveying, and conservation.

The symposium was sponsored by the Indiana Cave Survey (ICS), the Indiana Karst Conservancy (IKC), and the Hoosier National Forest (HNF). Grottos of the National Speleological Society in Indiana as well as the sponsoring groups were invited to present short talks about their recent projects.

Although scheduled to be held in a "pavilion", the actual site was a picnic shelter without electricity on a hill at the back of the campground. Four hundred feet of electrical wiring, a plug in a nearby out building and a quick trip to a local hardware store took care of the electricity problem.

Everyone contributed munchies while the main course of filleted hot dogs was cooked up by Holly Cooke. Scott Fee acted as MC for the program.

A variety of topics were discussed including a general overview by Larry Mullins of the ongoing Karst Analysis Resource Survey Team (KARST) project and the recent Bat Census by Keith Dunlap. It was appropriate that the first bats of the evening whipped through the shelter during Keith's presentation.

Steve Collins gave a detailed synopsis of the Spring Mill State Park survey project and there were several excellent slide presentations on explorations in Indiana and Kentucky.

There was no shortage of material and the calendar changed to Sunday before most of the attendees returned to their campsites.

There were several other activities held in conjunction with the Indiana Cave Symposium. Bob Armstrong conducted one of his famous tours of the Lost River area on Saturday morning. Larry Mullins also had a ridge walk in progress for most of the day.

On Sunday, the Indiana Karst Conser-

vancy held the annual Sullivan Cave cleanup, Under Earth Day IV.

Fortunately, the weather was good and the shelter was barely large enough to handle the audience. The wind proved to be a problem toward the end of the evening when a sudden gust toppled and ripped the Central Indiana Grotto's projection screen.

Hopefully, a more sheltered building can be found for the second annual Indiana Cave Symposium. Although there are lots of projects "in the works" in Indiana the program should also be limited a bit more. The evening became quite long, especially for those not camping over night that had to make the trek back home.

All-in-all, Dave Black did an excellent job organizing the first Indiana Cave Symposium. We're looking forward to the second program next year.

1993 KARST ENCOUNTERS SEPTEMBER 17,18, 19 MUSCATATUCK COUNTY PARK NORTH VERNON, INDIANA

Mark your calendar now and come see the caves of the rarely visited eastern Indiana karst region. The guidebook will include over 25 caves. We will have a large grassy campground complete with a playground, soccer field, flush toilets, and showers.

Hosted by the Eastern Indiana Grotto

Early registration only \$9.00!

For more information contact

Brian Leavell
1627 South M Street
Elwood, Indiana 46036
(317) 552-7619

LOST RIVER TOURS

by Larry Reese

Saturday April 24th was the first Lost River Tour of the season conducted by Bob Armstrong, chairman of the Lost River Conservation Association (LRCA).

This is pretty much a one man band with Bob carrying the load for many years. Bob conducts tours of the Lost River five times each year for members of the general public and special tours for various governmental agencies as the need (or request) arises. He is also active in bringing the Lost River story to the press, public, landowners, and governmental authorities when any part of the Lost River area is threatened by current or proposed activities within the area. The LRCA is an NSS Conservation Task Force, formed in 1972.

But now back to the tour. It is billed as an all day tour leaving from the town square in Orleans at 8 AM and ending at the Orangeville Rise at 4 PM. The tour goes on rain or shine and Bob states that rain is even better because you can then see some of the features active that you won't normally see in dry weather.

So on April 24th I got up early and headed for Orleans to see what Bob had to offer. Arriving at about 7:30 I found Bob standing on the southeast corner of the town square in a light drizzle. He told me that he expected three or four families would show up for the trip. Gradually people began to wander up and about ten minutes before 8:00 Bob began his introductory speech. When he finished, he suggested that we share rides and minimize the number of cars in the group. Well, we ended up with about 30 people and 11 cars in the caravan. The group was quite a bit larger than Bob had expected.

Cavers were represented by myself, Keith Dunlap and a caver from Kentucky. The remainder of the group was from the general public.

The tour was to cover about 80 miles, but never more than 10 miles away from Orleans. First we headed east to the South Fork of the Lost River in Washington County. Stop number 2 was just a few miles away at the North Fork, and stop 3 was just down stream from the confluence

of the two forks. Here we could see how the size of the river was increasing.

Our next stop was at the confluence of Carter Creek and the Lost River. Carter Creek is the last major surface stream that joins the Lost River before subsurface drainage comes into play. We then went to the bridge on SR 337 to see the river at close to its maximum size. From this point on, the river begins to shrink in size as water is pirated underground by various holes in its stream bed.

Now on to the first major sink which on this trip was observed as a large area of calm water. I would not have recognized this as a significant spot unless told so, but upon close observation, you could see that there was less water downstream from this feature.

As we crossed the Lost River on highway 37 we could see that there was no water in it. We then hiked upstream to the Stein Swallow Hole and had a great view of a large swallow hole with an impressive log jam in it. Unfortunately the Lost River had become lost somewhere further upstream in the two miles or so of river bed between the Fishers Ford bridge and the Stein Swallow Hole. Returning to our cars, we drove up to Magner Hill for a good view of the sinkhole plain.

Next it was time for a lunch break as we returned to Orleans and stopped at a local grocery/deli for those who had not brought along anything for lunch. We regrouped at the deli before continuing and by this time our group had diminished to five cars of people as some had lost interest and others had to leave for other commitments. The plan was to drive to an area of interest and stop for lunch but most of us were hungry enough that we ate in the cars on the way and were finished by the time we reached the next stop at one of the few fords across the dry bed. We continued on to a spot where we could see the Lost River sinkhole plain from the south. Next we stopped briefly near Toliver Swallow Hole, but did not make the hike to stay on schedule.

The next stop on our tour was the Elrod Gulf which Bob explained is more often

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1993 INDIANA BAT CENSUS RESULTS

by Keith Dunlap

In the last *Update*, details of the 1993 Indiana bat census were presented. In this article, I will try to present the cumulative data systematically collected over the past seven biennial censuses (1981-1993), along with some historic data dating back almost forty years. The majority of the recent data has been gathered by Dr. Virgil Brack, originally as part of his PhD work, and more recently under contract with the Indiana Department of Natural Resources. The exceptions are the population figures for Batwing and Twin Domes caves which were collected under the direction of Richard Clawson of Missouri, sponsored by the US Fish & Wildlife Service.

The table on the following page represents the summary of over 100 cave visits to twenty-five different caves documented to have Indiana bats. In addition, another twenty-five caves have been visited at least once over the past twelve years specifically to look for Indiana bats, but none were located (although four caves have historic records).

It is interesting to note that more than half of the active hibernacula have been "discovered" in the last ten years, many originally reported by cavers. Most of these new caves have small colonies that do not contribute much to the overall population; nevertheless, these caves could be significant in the long term recovery of the species.

The table lists the caves in descending order of colony size based upon the most recent census. As you can see from the accompanying pie chart (figure 1), half of the state's population is in a single cave, while 95% of the population hibernate in just five caves.

POPULATION TRENDS

The Indiana bat (*Myotis sodalis*) was one of the first species to be protected under the 1973 Endangered Species Act. The reason for the bat's listing was the well documented observations of population declines in the seven major hibernacula known at the time in Indiana, Kentucky, and Missouri. From 1960 to 1987,

the population declined by over 50 percent. This downward population trend continues today in Missouri, has appeared to have leveled off in Kentucky, and at least temporarily, is reversing in Indiana.

MYOTIS SODALIS IN INDIANA 1993 WINTER POPULATION

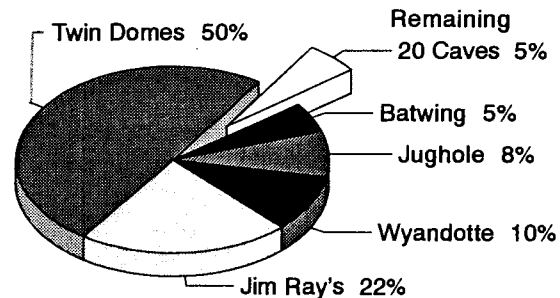


Figure 1

Figure 2 shows the estimated "adjusted" Indiana bat population in Indiana hibernacula for the period from 1981 to 1993. As can be seen, since 1985 the population has been gradually increasing. It should be noted that this increase is *real*, not just the result of more caves being included in the census. The adjustments made to the totals consisted of adding approximated populations in then unknown/uncensused hibernacula to the earlier totals. This minimizes the biasing of the trend due to more caves being included in the latter counts.

WINTER POPULATION OF MYOTIS SODALIS IN INDIANA

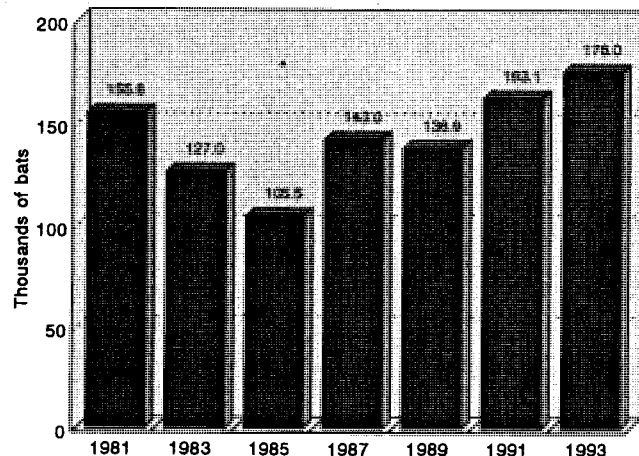


Figure 2

Looking at population trends in individual caves is interesting in that five caves have been showing consistently increasing trends, three caves have been decreasing, and the remainder have undeterminable trends or there has not been enough data collected to make a determination. *(I should state a disclaimer here that all the trend predictions made in this article are completely unscientific and represent a relatively short sampling period which may or may not reflect anything significant. In other words, these observations are strictly my own opinions.)*

It is not surprising that the population in Twin Domes cave (figure 3) pretty much matches the total population trend (figure 2), since this cave is such a large component of the total.

One of the biggest disappointments has been at Batwing Cave (figure 4) where the

population has decreased every census except one since the cave was originally documented as a significant hibernacula in the mid-70's. While it is conceivable that the gates installed in June of 1988 could be part of the problem, the design has proven successful in other situations (including Wyandotte).

Wyandotte Cave is an interesting contradiction in resource management. While it serves as a significant hibernacula, it is also a commercial tourist cave run by the Department of Natural Resources. Large populations of bats have been documented in this cave for over one hundred years (in fact, the *sodalis* was first classified as a separate *Myotis* species in this cave and thus the "Indiana" designation). Numerous gates have been placed on the cave with different degrees of air flow restrictions. A 1953 report by Mumford estimated the population at 10,000 bats (see

RECENT POPULATIONS OF MYOTIS SODALIS IN INDIANA CAVES

CAVE NAME	1981	1982/83	1985	1987	1989	1991	1993
Twin Domes (Harrison) ¹	98250	70750	56650	79650	70800	78500	87350
Ray's Cave (Greene)	12500	13475	16200	22990	28581	41854	38386
Wyandotte (Crawford)	2152	4550	4627	6681	10344	12994	17304
Jug Hole (Harrison)				5535	6424	7640	13924
Batwing Cave (Crawford) ¹	29950	26650	14750	17450	14500	13150	9350
Coon Cave (Monroe)	1190	550	777	2950	2103	3696	4451
Grotto Cave (Monroe)	3190	2692	4198	3778	2985	1996	1568
Parker's Pit (Harrison)		(500)		1803	1104	926	1045
King Blair/Brinegar (Monroe)				(12)			442
Robinson Ladder (Crawford)					(95)	388	376
Saltpeter (Crawford)		352		427	295	508	375
Endless Cave (Washington)		2		1		134	335
Clyffy Cave (Greene)		66		198	412	357	307
Saltpeter (Monroe)		(83)		(19)		221	245
Nichols Cave (Orange)							(200)
Leonard Springs (Monroe)					135	112	92
Wallier Cave (Harrison)						36	72
Sexton Spring Cave (Greene)							67
Wildcat Cave (Crawford)		29		0		31	61
Buckner Cave (Monroe)		480	301	336	24	51	25
Achcraft Cave (Greene)							20
Mitchell Quarry (Lawrence)						9	
Bentz Cave (Crawford)		0			3		
River Cave (Washington)		104		5		1	
Salamander Cave (Monroe)		74		0		0	
TOTAL (adjusted)²	155800	127000	105500	143000	138900	163100	176000

1 Censused by Richard Clawson for the USFWS, the remainder censused by Dr. Virgil Brack for the IDNR.

2 For the purpose of comparisons, populations for non-censused (or unknown) caves were estimated to give an adjusted total.

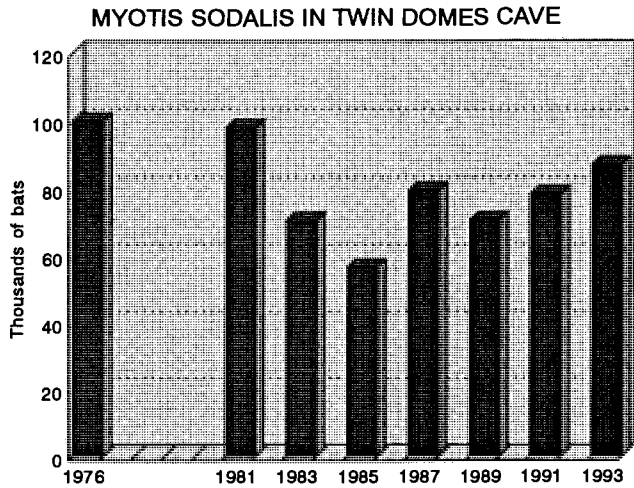


Figure 3

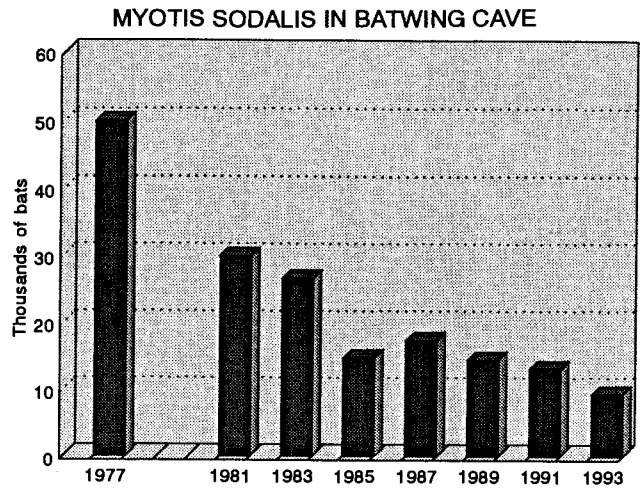


Figure 4

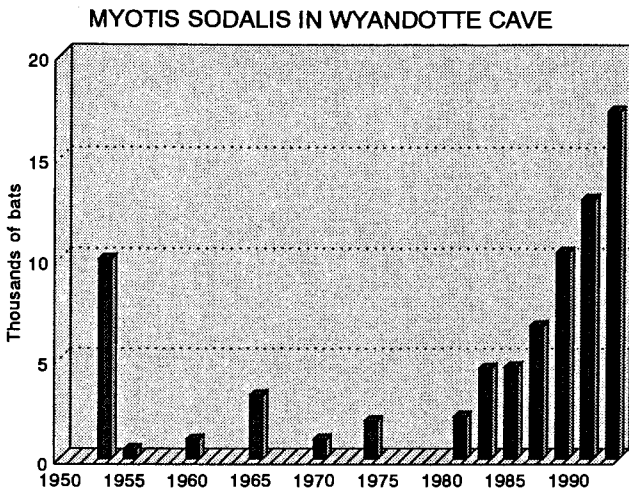


Figure 5

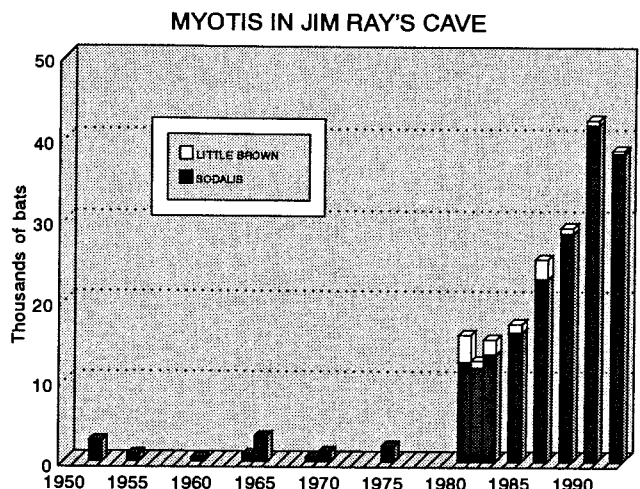


Figure 6

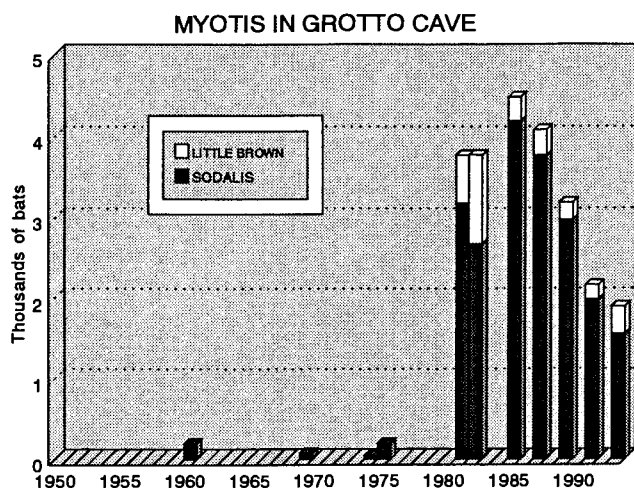


Figure 7

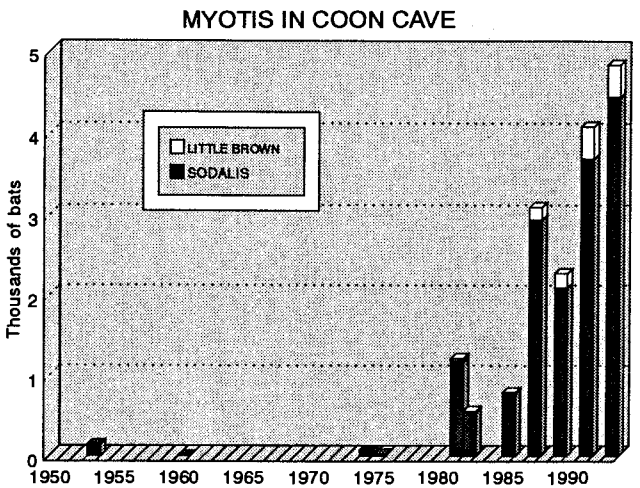


Figure 8

figure 5). However, just a few years later, the population was only one-tenth that size. The population fluctuated around 2000 bats until the late 1970's when the solid stone gate was replaced with an open grate gate. It is speculated that this significantly restored the airflow back into the cave providing a better winter habitat. Since 1981, the population has increased eight-fold to over 17,000 bats (number 3 in Indiana). The gate replacement in July of 1991 apparently was also acceptable to the bats and may have further improved airflow into the cave, witnessed by a significant increase of bats observed hibernating in the Rugged Mountain area in 1993.

One can only hypothesize that the population decrease at Batwing and the increase at Wyandotte might be interrelated. Perhaps Batwing has always been a "marginal" hibernacula, but was better than Wyandotte when the old gates were installed. The population may have been artificially displaced to Batwing explaining its large population prior to 1978. But now that Wyandotte's airflow has been restored, the colony may be gradually switching back to the better habitat.

Of the other caves in the Harrison and Crawford County area, Jughole has shown the greatest *action*. First censused in 1987 with 5500 bats, the populations in 1989 and 1991 showed modest increases, but nearly doubled from 1991 to 1993 to almost 14,000 bats, making it the fourth largest hibernacula in Indiana.

Moving north, Jim Ray Cave in Greene County has had remarkable population growth in recent years (see figure 6). Historic records by Mumford and others showed the cave's population never exceeded 3200 bats in nine visits between 1952 and 1975. Brack's visits in the early 1980's showed the population had jumped to approximately 12,000 Indiana bats and several thousand Little Brown bats (*Myotis lucifugus*). In 1987, 1989, and 1991, the population exploded, topping out at almost 42,000 Indiana bats. In 1993, the population decreased slightly, but this variation could easily be in censusing methodology (this cave is difficult to census because of the many clusters that have to be estimated quickly to minimize disturbance).

There is no clear explanation for the dramatic population increases, but two contributing factors may have played important roles. First it is known that a medical researcher from IU was illegally collecting perhaps thousands of bats each winter during the 1970's. This may have kept the population below some critical level to grow. Second, the "rear" entrance to the cave may have naturally enlarged itself over the past twenty years, allowing more airflow to cool the cave, making it a better hibernacula.

Moving to Monroe County, Grotto Cave is another puzzling hibernacula. Historic records have shown very small populations in the 1960's and 1970's (see figure 7). However, in the early 1980's Brack reported significant numbers of Indiana and Little Brown bats. The cave peaked in 1985 with 4200 Indiana bats and has been decreasing each census since. In 1993, there were less than 1600 Indiana bats. One observation is that the cave is warmer than optimum, possibly making it a marginal hibernacula at times. A second speculation is a negative reaction to the fence that was installed in August of 1985.

The "sister" cave to Grotto is Coon Cave. It too had historic records in the 1950's through 1970's of only a few hundred bats (see figure 8). Brack's observations in the early 1980's were around 1000 bats. Since 1987, the population has increased significantly and exceeded 4400 Indiana bats in 1993. Part of this increase

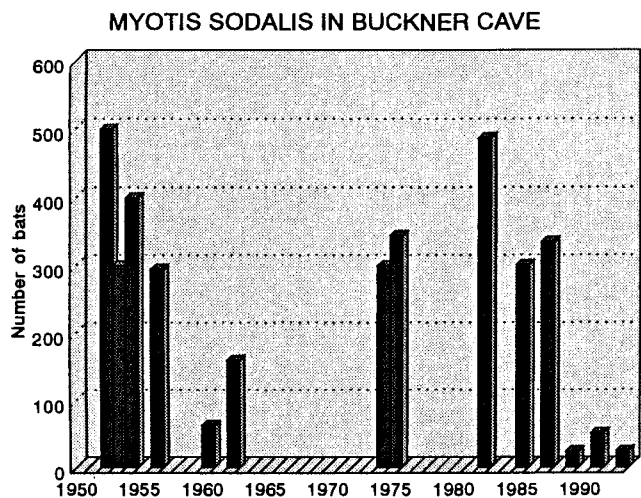


Figure 9

can be theorized as a migration of bats from Grotto. Fortunately the combined totals in the two caves has been increasing.

The final cave with long term census data is Buckner Cave. Historic populations from the 1950's to 1975 were generally in the range of 300 to 500 bats (see figure 9), all located in the entrance room. Brack's observations in 1982, 1985, and 1987 con-curred with the historic numbers. However, the last three censuses (1989-1993) have shown a significant decrease to between 25 and 50 bats. Those who have visited Buckner are probably amazed that there are *any* bats hibernating in this cave. There are probably a hundred explanations for the large population drop between the January 1987 census and

1989, but one incident of significance was the Christmas rescue in December of 1987. It is easy to invision that the extended activities in the entrance room may have driven the bats out of the cave in the dead of winter, or at least disturbed them to the point of burning so much of their energy reserves that they couldn't survive until spring.

There are other interesting observations and speculations that can be made from this census data, but the reality is that the time duration of this information is too short to mean much. Perhaps in another ten or twenty years of systematic censusing, definitive conclusions can replace general speculations.

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referred to as the Wesley Chapel Gulf although its correct name is the Elrod Gulf as now shown on current topos of the area. This area is very impressive and here the Lost River again makes a brief appearance. The gulf is an area of about eight acres of collapse with sides as high as 90 feet or so at points. It roughly resembles a footprint. The Lost River appears at a resurgence at one end and wanders around the edge of the gulf gradually disappearing in numerous small sinks. At high flow times it has been reported to flood the entire gulf with several feet of water. Several cave entrances are contained within the gulf although all probably flood completely and are caves that I would have to think long and hard about entering at any time of the year.

Our next stop was at a farm house where a short hike across the farm fields under the watchful eyes of the area residents (several cows) took us into the woods in search of the Lost River. Due to luck (or the experience of our guide) we were fortunate enough to find the missing Lost River at a rise that was gently issuing water back into the channel. Bob advised that a short distance upstream was another rise that we should also visit. Upon arrival we found that this rise was not

active and there was only a small pool of water a few feet below the dry stream bed.

Our final official stop on the tour was to the Orangeville Rise. We ended up here at about 4 PM, right on schedule. It was explained to us that the source of the water at the Orangeville Rise is not from the Lost River per se, but actually from the drainage basin to the north including the areas north and west of Orleans.

Although Keith and I had to leave to head to Hardin Ridge and the Indiana Cave Symposium, the others followed Bob to the True Rise of the Lost River about a mile to the south of Orangeville.

Overall it was a very enjoyable and informative trip and I can recommend it to anyone with a full Saturday to spare. I have visited many of these parts of the Lost River in the past, but still had a great time and obtained a better perspective of the entire system.

If you are interested in future tours contact Bob Armstrong for dates and details at (317) 926-4266 after 4 PM, or write to him at 3101 Washington Blvd, Indianapolis, IN 46205. Remember the tours are free and if it rains it's even better!

[Editor's note: The remaining dates for this year are September 25th and October 9th.]

EAGLES S.O.A.R. IN A CAVE

by D. Marc McFall

I hadn't been caving for years. The last time I went was with a Boy Scout group, to Dog Hill-Donnehue, led by Randy Webster, a Scouter and friend who loved caves. I guess I felt as though I was returning a favor by taking these scouts to the same cave.

It was on March 20, 1993. We parked by the dealership and walked down the drain culvert and entered. At first the boys weren't impressed, but after a few hundred feet they started getting excited. I remember being asked if we were the first ones to come this far in. We were only 2 minutes into the cave. The cave looked unused or unabused so far. As we got deeper into the cave the boys began seeing signs that others had been there before. Our cave packs were lined with trash bags and some of the young men began to pick up the cans, bottles and cigarettes. They often stopped to gather candy wrappers or objects left behind without being asked. Many of the scouts expressed disgust at the drawings on the walls and the other people they saw. Many of the groups were college age with no cave gear at all except a single flashlight and a bag. We later found the bag, a candle wax glob and a beer bottle. The boys were mad and cleaned it up. We had talked about collecting trash and respecting the cave's wildlife in the pre-trip training, but this was more than that. I believe they were mad because someone had burst their fantasy bubble of being the first ones to be here. We had been involved with S.O.A.R. (Save Our American Resources) projects in scouting by cleaning roadsides and other visible locations, but never underground. It felt good knowing the group following us would have a bit more magic in their trip.

Having been in the cave before, I told the boys the parts of the cave I remembered. The one thing that had stuck with me all these years was the crawl under the flow stone. The boys kept asking questions about it. I

relived the moment as I related my memory of it. Great challenges in our lives tend to make us better. However, the trip to the flow stone seemed to be a lot longer than I had remembered. The boys were all aware that they would face "The Challenge of the Flow Stone" once we reached it. They pushed forward and constantly asked if we were getting close to the flow stone. We stopped now and then to investigate other passages, holes and bridges. Finally the word came back that the cave had ended. The wall of rock in front of us had only a few inches of air space between water and rock. One by one they crawled under. In order to keep their faces above water, many of the boys removed their hardhats and went head first on their backs. Even though it's only about 10 feet long, you would have thought that they had just sunk the winning shot at the buzzer. One young man was having second thoughts and wanted to turn and go back. His father with one quick and deliberate move entered the water and disappeared under the rock. The boy followed with the cheers of the others on the other side as encouragement. I have to admit that the flow stone is still a big challenge for me. I was proud of that scout for meeting what for him was a big obstacle. And proud of the others who recognized his victory rather than his hesitation. The cheers of the others confirmed that they had all struggled with the same challenge, but differed only in their timing since they all eventually made it. At the exit of the cave there were cheers of relief and the silence of reflection and the wanting of more. There was also the pride of a father and the look of confidence in each boy that wasn't there before. This cave changed these boys and I hope they will return with a new generation of youth and help this cave live.

We had a great time and the boys of Troop 112 of the Carmel, Indiana Lions Club will return.

continued from page 9 . . .

tinues to allow tons of silt to be flushed into the sinkholes. When we've pointed out specific instances of erosion problems, their reactions are usually to make excuses (they blamed most of last year's erosion problems on too much rain --- dah!). They also continually claim that erosion control is the responsibility of the contractor and

that there is very little they can do to enforce compliance (bull!).

The new MOU addresses appropriate erosion control as well as the new water quality regulations from IDEM (known as Rule 5). If INDOT wants to settle the administrative appeal amicably, then they are going to have to demonstrate a significant improvement to the *status quo*.

INDIANA KARST CONSERVANCY, INC.

Statement of Receipts, Expenditures, and Changes in Fund Balance for the Quarter Ending 03/31/93

General Fund: Opening Balance 2,544.45

Receipts:

Memberships	1,958.75
Donations	283.50
Hancock Fund Transfer	219.49
OVR Legal Defense Fund	100.00
Publication Sales	22.00

Net Receipts 2,583.74

Expenses:

Update Expenses:

March Issue	164.62
Copying/Cover Paper	76.45
Photographs	18.70
Membership Solicitation Ltr	197.03
Stapler Expense	25.00
SR 37 Film	20.00
Wayne's Lock Maintenance	15.75
Earth Day Booth	30.00
Secretary of State Fee	10.00
Postage: Secretary	22.04
Misc	6.50
Renewal Letter Postage	29.50
Renewal Letter Paper	7.90
INDOT Letters & Misc	10.00
Meeting Room Rent	20.00
Ballots (Election)	16.00
Graphic Arts Salon	3.00
Bank Charges/Misc	7.63

Net Expenditures (680.12)

General Fund Balance 3/31/93 4,448.07

Hancock Fund Opening Balance 325.22

Receipts 0.00

Expenses:

Postage	5.73
Shaft Signs	100.00
Transfer to General Fund	219.49

Net Expenditures (325.22)

Hancock Fund Balance 3/31/93 0.00

Total: All Funds 3/31/93 4,448.07

IKC ANNUAL BUSINESS MEETING MINUTES

Saturday, March 20, 1993

Indianapolis, Indiana

BOARD MEMBERS PRESENT:

James Adams	Keith Dunlap
Jane Miller*	Lynn Miller*
Jeff Cody	Ernie Payne
Tom Rea	Bill Tozer

BOARD MEMBERS ABSENT:

Eric Schmidt	Glenn Lemasters*
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* Retiring board members.

After some administrative work in preparation for the elections, the meeting was called to order at 7:16 PM by IKC President, Keith Dunlap at the Indiana World War Memorial. Introductions were made. Elections were postponed to allow some members to arrive who had been delayed. There were several announcements, most of which can also be found in the March issue of the *IKC Update*.

The Under Earth Day IV clean-up of Sullivan Cave will be on April 25 beginning at 10:00 AM.

The Indiana Cave Symposium (sponsored in part by the IKC) will be held on April 24 at the Hardin Ridge campground.

There are several Hoosier National Forest Ridgewalks coming up. The IKC will sponsor a ridgewalk on March 21. The Northern Indiana Grotto will sponsor a weekend on March 27 & 28. Others are scheduled for April 10 and April 24.

Indiana Earth Day will take place in Indianapolis on March 24th. Bruce Bowman volunteered to man the IKC booth again this year.

Keith expects the SR 37 sinkhole situation to be settled soon. The appeal process continues with a (closed) meeting next Wednesday (3/24).

The Army Corps of Engineers has been given \$400,000 of which approximately 1/3 is to be used to study the environmental aspects

of Lost River flood control. This has been studied several times since 1946. There was a meeting on March 8 at which various environmental groups were asked what they thought the Corps should study. Fish & Wildlife will probably help direct the study.

The Mill Creek Water Quality Demo is designed to show farmers alternative methods to decrease erosion and decrease silting in karst areas. A \$20,000 video concerning erosion control will be circulated to farmers.

The New Market Bill has passed the House but is currently stuck in the Senate. Cissy Bowman reported that HB 1759 which will help regulate and increase organic farming has gone through some changes. It is also in the Senate. The question of funding for a salary increase for IDNR biologists (SCR 75) is still up in the air...no news.

There will be a restoration project at Wyandotte Cave on Easter weekend. There are several projects that are in need of attention. Wyandotte Woods and Stage Stop will be open for camping. Spots are probably no longer available and acknowledgements are *not* being sent out.

Rays Cave - the IDNR has been negotiating with the new landowner to gate the cave. It has the second largest known Indiana Bat colony in the state. If a lease agreement can be worked out, the gate is scheduled to be installed in early August.

Shiloh Cave - A meeting needs to be scheduled with the landowner and then work should be able to proceed on the gate replacement at the quarry entrance.

Suicide Cave - The property has changed hands. Until the new owner can be contacted and an access policy established, everyone should refrain from visiting this popular spot.

Ashcraft Cave - The former owner's heirs have disputed the will which gave the property to the state. However, an agreement seems to have been worked out in which the state will

retain the cave entrance and some property. A small cluster of Indiana bats was discovered recently in the cave.

Shaft Cave - New warning signs are ready and will be hung tomorrow (3/21).

The recent membership drive was a great success. Our membership is now over 150, a 50% increase. There was some discussion about other solicitation efforts including expanding to other states and hitting Indiana harder. Jim Adams will see to having a brochure included in the welcome packet at Cave Capers.

Since the rest of the items on the agenda required a vote of the Directors, the elections were held at this time.

There were several nominations received through the mail-in ballots: Dave Haun was nominated for President. Joe Norris and Eric Schmidt were both nominated for Treasurer. These are in addition to the candidates already listed on the ballots which were mailed to the membership.

1993 Executive Board -

President -	Keith Dunlap	(1994)
Secretary -	James Adams	(1994)
Treasurer -	Scott Fee	(1994)
Directors -	Bruce Bowman	(1995)
	Jeff Cody	(1994)*
	Bruce DeVore	(1995)
	Dave Haun	(1995)§
	Hank Huffman	(1994)
	Scott Johnson	(1995)§
	Larry Mullins	(1995)§
	Ernie Payne	(1994)*
	Tom Rea	(1994)*
	Eric Schmidt	(1994)§
	Tom Sollman	(1995)
	Bill Tozer	(1994)*

* elected last year for two-year term
§ absent from meeting

A human-powered mud sprayer has been found. Keith moved to spend \$70.00 on a single "test" unit. Passed 11-0.

The IKC "borrowed" \$15 worth of *Bats of the Eastern United States* from the DNR for our membership drive. Keith moved that we reimburse the DNR. Passed 11-0.

We are about out of "recycled" envelopes for mailing the *IKC Update*. Although it will involve an envelope purchase, it was moved to continue to use envelopes for our mailings. Passed 11-0.

There are various forms which need to be filed at this time of year with the state. These concern our incorporation and our IRS status. The Secretary and Treasurer have and will continue to work on this project.

The next IKC meeting will be in Bloomington at 7:00 PM on June 26.

Issues from the floor included a report from Hilary Lambert Hopper on the Sloans Valley Conservation Task Force. Sloans Valley has gotten a bad reputation as a party cave and is known as the longest sacrificial cave in the US. A nearby landfill may also be impacting the cave environment. The task force is trying to evaluate the impact of the landfill but hasn't gotten much cooperation from local/state government which continues to allow the landfill to operate without a permit although several recommendations have been made to clean up the area.

Unfortunately, the efforts of the Sloan Valley Task Force have not been acknowledged by the state and the task force may file suit in the next few weeks to force some decisions. The Task Force may seek consultation from the IKC.

Bruce Bowman continues the Karst Conservation area on his H.O.M.E. BBS - (317)-539-6579. This BBS will be taking over some of the local caver traffic when the NSS BBS closes down on May 1.

After reading accounts of some trash at Waynes Cave in the most recent *IKC Update*, Ernie Payne pointed out that no one from the EMG has used their key recently. There was some discussion about access and clean-ups.

The NCRC Regional Rescue Seminar will be held the first weekend in April. Contact Don Paquette or Anmar Mizra for info.

The meeting was adjourned at 9:13 P.M.

Submitted by James Adams, Secretary

Lost River compared to a 'subtle' Grand Canyon

by Steven Higgs

It may be hard to imagine any part of Indiana being compared to the Grand Canyon.

But that's what about five dozen state officials were asked to do on Friday as they got up-close, walking-through-the-woods-and-weeds view of southern Indiana's Lost River.

As a group peered at the river from a bridge along a back-county Orange County road south of Orleans, they were told that its bowl-shaped watershed drains an area of roughly 200 square miles and is 12 miles wide in places, about as wide as the world-famous Arizona canyon.

"You can think of it as a rather subtle version of the Grand Canyon," said Bob Armstrong from the Lost River Conservation Association. A major difference, he said, is that the more spectacular aspects of the Lost River are subterranean.

The river begins in western Washington County and flows generally westward through Orange and Martin counties, where it meets the east fork of the White River.

The riverbed travels a twisted 85 miles, 22½ of which meanders across the northern Orange County landscape without water. The river sinks underground about three miles south of Orleans, rising to the surface a few miles to the west.

No one is really sure what path the river follows between, Armstrong said. But where it rises near Orangeville, divers have gone down a vertical slot 165

feet to a horizontal stream believed to be the river's main underground channel.

Armstrong conducts tours of the Lost River region, an area of karst topography and one of Indiana's most intriguing and environmentally sensitive land forms. On Friday his tour group was composed of officials from the state transportation, natural resources, and environmental management departments.

About two dozen of the contingents were from the Indiana Department of Transportation, which has big plans to build highways through southern Indiana's karst areas. Karstland has a porous limestone base containing deep fissures, sinkholes, caves, and underground streams.

INDOT came under harsh criticism in May 1992 when workers on Ind. 37 between Mitchell and Bedford disturbed the habitat of blind cavefish, a state endangered species that lives in the region's underground streams. The Indiana Natural Resource Commission ruled the department violated the state's endangered species act.

With environmental groups threatening to sue, INDOT developed an agreement with the state and federal wildlife agencies on new procedures for highway construction in karst areas.

Assistant state highway commissioner Kathy Davis, who was on Friday's tour, said the new procedures have been approved by highway commissioner Fred P'Poole and have been sent to other agencies for their final approval.

Among those on the tour were INDOT administrators, engineers, and land acquisition personnel, who Davis said would learn valuable lessons for future projects.

Katie Smith, non-game wildlife biologist for the Indiana Department of Natural Resources, organized the tour. While she originally thought about 15 might go, 58 signed up, she said.

Throughout the day-long excursion, they saw various aspects of the Lost River's natural features.

For example, the troop trekked over unplowed cornfields, through shoulder-high weeds, and down a steep, muddy embankment to get a look at the spot where the above ground river ends. Armstrong told them that there is no channel or cave where the water drains, it just seeps into the ground.

He also dispelled some misconceptions. While many think the Lost River emerges at the Orangeville Rise, the "true rise of the Lost River" is about three-quarters of a mile downstream from there, he said. Dye tracing have shown that water at the Orangeville Rise comes from near Orleans.

"We don't know where it goes from here," Armstrong said at the spot where the river sinks out of sight. But noting that as part of the new procedures INDOT is supposed to do some studies of the underground flow, he added, "We stand to learn a lot when INDOT does their dye tracing."

Reprinted from The Herald-Times (Bloomington) May 23, 1993.

INDIANA KARST CONSERVANCY, PO BOX 2401, INDIANAPOLIS, IN 46206-2401

I would like to help the IKC protect Indiana's unique caves and other karst features. Enclosed is:

\$_____ for IKC membership dues at \$15 per year (dues expire March 31st of each year, please pro-rate @ \$1.25/month).

\$_____ donation to the general IKC fund.

\$_____ donation restricted to a specific IKC project. Please specify: _____

_____ I know of an area worthy of protection. Please contact me.

_____ I would like to volunteer to help. Please contact me.

NAME _____

ADDRESS _____

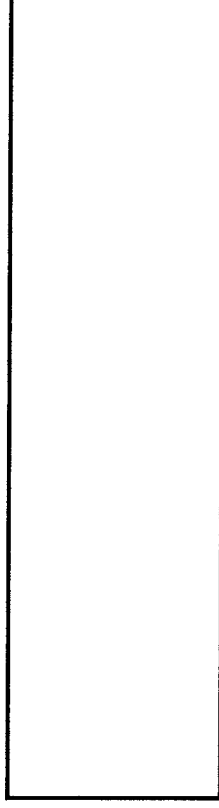
CITY/STATE/ZIP _____

PHONE # _____

Make checks payable to the Indiana Karst Conservancy, Inc. and mail to the IKC Treasurer, c/o Indiana Karst Conservancy, PO Box 2401, Indianapolis, IN 46206-2401. The IKC is an IRS recognized 501(c)(3) non-profit organization with membership dues and donations fully tax deductible.

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